

ABSTRACT OF THE DISCLOSURE

A waveguide transition for use with an antenna aperture. The waveguide includes a tubular waveguide component with a concentrically disposed dielectric insert. In one embodiment the inner surface of the waveguide component is non-linear and formed by either a gradually curving surface or a plurality of linear sections disposed adjacent one another to form an overall non-linear surface when viewed in profile. In other embodiments the outer surface of the dielectric insert is shaped so as to form either a gradually curving surface or by a plurality of non-linear, adjacently formed sections that form an overall non-linear shape when the dielectric insert is viewed in profile. The waveguide of the present invention produces significantly improved cut-off frequency performance that allows a greater degree of flexibility in designing the antenna aperture with a desired operating frequency bandwidth.

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